

CLAIMS

1. A method of authenticating, using an authentication server, the use of an authentication device over a communication network via an intermediate communication
5 device, comprising:
 receiving an authentication datagram by said intermediate device;
 protecting said datagram by said intermediate device, by at least one of changing,
adding to, encrypting and signing of said datagram; and
 forwarding said datagram to said authentication server for authentication.
- 10 2. A method according to claim 1, wherein said intermediate device comprises a vendor WWW site.
3. A method according to claim 2, wherein protecting comprises adding a signature
15 associated with said vendor to said datagram.
4. A method according to claim 2, wherein protecting comprises encrypting said datagram.
- 20 5. A method according to any of claims 1-4, wherein said intermediate device comprises a user computing device.
6. A method according to claim 5, wherein said computing device adds a time stamp to said datagram.
- 25 7. A method according to claim 5, wherein said computing device adds a vendor-associated information item to said datagram.
8. A method according to claim 5, wherein said computing device encrypts said
30 datagram.
9. A method according to claim 8, wherein said encryption uses a one time code.

10. A method according to claim 8 or claim 9, wherein said one time code is provided by a vendor for a particular session with said user.
- 5 11. A method according to claim 5, wherein said user computing device uses an embedded software component for said protecting.
12. A method according to claim 11, wherein said embedded software comprises an ActiveX component.
- 10 13. A method according to claim 11, wherein said component is cached on said user device.
14. A method according to claim 11, wherein said component requires a property value
15 provided by a vendor to operate.
15. A method according to claim 1, wherein communication between said intermediate device and said server uses a secure connection.
- 20 16. A method according to claim 1, wherein different communication paths are used for said authentication and for transaction details from said user.
17. A method according to claim 1, wherein different communication paths are used for said authentication and for transaction details from a vendor to said authentication server.
- 25 18. A method of authentication of an authentication datagram by a remote authentication server, comprising:
- sending an encrypted datagram by secure computer communication from a vendor software to said remote authenticator;
- 30 comparing said datagram or a hash thereof to a hash table at said server; and
- generating a binary validation answer by said server without an associated explanation.

19. A method of authentication of an authentication datagram by a remote authentication server, comprising:

5 sending an encrypted datagram by computer communication from an authentication device to said remote authentication server;

searching, at said server, for a hash value matching said datagram or a hash thereof;
and

generating a validation answer by said remote authentication server, responsive to said search,

10 wherein, said datagram includes a secret code and wherein said secret code exists only on said authentication device.

20. A method according to claim 19, wherein said authentication device includes a plurality of secret codes that are generated to appear unrelated.

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21. A method of generating a code set for an authentication device, comprising:

providing a code generating software;

providing at least one seed code for said software;

generating said code set using said software and said seed;

20 destroying said seed immediately after generating said code set; and

storing said code set or an indication thereof on an authentication device.

22. A method according to claim 21, comprising generating hash values for said code set.

25 23. A method according to claim 22, comprising generating a second set of hash values for said code set, using a different hash function for said second set.

24. A method of communication between a vendor and a user using an authentication device, comprising:

30 generating a one time code for the user for a session;

receiving an authentication datagram from said user; and

passing on said datagram for verification by a remote authentication server if at least an indication of said one time code that matches said user is provided with said datagram.

25. A method according to claim 24, comprising signing said datagram using said one time code by said user.
- 5 26. A method of remote validation, comprising:
receiving an authentication datagram by an authentication server from a remote authentication device;
matching said datagram or a hash of said datagram to a table;
calculating a counter value from a matching position in said table; and
10 validating said authentication datagram based on an increase in said counter over a previous counter being within a certain limit.
27. A method according to claim 26, comprising:
failing said authentication based on said increase being too large; and
15 allowing a subsequent authentication based on a further increase of said subsequent validation being below a second threshold.
28. A method according to claim 27, wherein said thresholds are the same.
- 20 29. A method according to claim 27, wherein said second threshold is smaller than said certain threshold.
30. A method according to any of claim 26-29, wherein said counter comprises an ordinal position in said table that is not apparently related to a series of generated random
25 numbers.
31. A method of detecting a transmission of an acoustic multitone FSK signal, comprising:
receiving an acoustic signal;
30 converting the signal into a Hilbert-transform representation of the signal
correlating said converted signal with at least one reference signal representing at least one expected frequency in said FSK signal;

integrating said correlation over an interval; and
determining if a signal is present, based on a thresholding of a result of said
integrating.

5 32. A method according to claim 31, comprising further determining if a detected signal
has a frequency within a certain frequency range.

33. A method according to claim 31 or claim 32, comprising further determining if a
detected signal has a signal to noise ratio within a certain signal to noise ratio range.

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34. A method according to claim 31, comprising resampling said signal after said
determining.

35. A method according to claim 31, wherein said threshold is noise dependent of the
15 received signal.

36. A method according to claim 31, comprising calculating said interval based on a
hardware characteristic of a producer of said acoustic signal.